

Box No. I	Basis of this opinion
------------------	------------------------------

1. With regard to the language, this opinion has been established on the basis of the international application in the language which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ in written format

☐ in computer readable form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statement that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments :

Box No. V	Reasoned statement under Rule 43bis.1(a)(I) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
-----------	--

1. Statement

Novelty (N)	Claims	1-18	YES
	Claims	none	NO
Inventive step (IS)	Claims	1-13, 16-18	YES
	Claims	14-15	NO
Industrial applicability (IA)	Claims	1-18	YES
	Claims	none	NO

2. Citations and explanations :

D1 US 6,472,532
D2 US 6,472,229
D3 CA 2,287,907
D4 US 5,688,815

NOVELTY

D1 and D2 disclose processes for manufacturing 3-hydroxy-4-oxo-1,4-dihydropyridine-2-carboxamides. D3 discloses 3-hydroxy-4-oxo-1,4-dihydropyridine-2-carboxamides having iron chelating properties, and oral pharmaceutical formulations comprising such to treat diseases of excess of iron. D4 discloses 3-hydroxy-4-oxo-1,4-dihydropyridine substituted with a heteroaryl-carbonyl at position 2, and oral pharmaceutical formulations comprising such to treat diseases of excess of iron. None of D1-D4 discloses cycloalkyl substituent either on the dihydropyridine nitrogen atom or on the nitrogen atom of the carboxamide substituent in position 2. Therefore, claims 1 to 18 present novelty over D1-D4 and comply with Article 33(2) PCT.

INVENTIVE STEP

D1 and D2 disclose the synthesis of 3-hydroxy-4-oxo-1,4-dihydropyridine-2-carboxamide. The last step of the synthesis in both these documents is the debenzylolation of the 3-hydroxy moiety using hydrogenation and a palladium hydroxyde on charcoal catalyst in ethanol. This is the same method that is applied in claims 14 and 15 of the present application. The difference between the present application and D1 and D2 lies in the presence of a cyclopropyl ring substituting the nitrogen atom of the dihydropyridine ring. Nevertheless, this difference would have been obvious for the person skilled in the art because D1 and D2 disclosed compounds with alkyl substituent at that position. The process claimed in claims 14 and 15 is the same method as in D1 and D2 but applied to slightly different compounds. The process of claims 14 and 15 lacks an inventive step and these claims do not comply with Article 33(3) PCT.

The difference between the compounds of D1-D4 and those of the present document is the presence of at least one cycloalkyl substituent on the nitrogen atom of the dihydropyridine ring or on the nitrogen atom of the carboxamide substituent. The closest substituent on the corresponding atoms in D3 is *aliphatic hydrocarbon group* which is exemplified as being straight or branched alkyl. D3 does not teach toward the presence of cycloalkyl substituent on the nitrogen atoms. The same applies for the compounds disclosed in D1, D2 and D4. Therefore, claims 1 to 13 and 16 to 18 present an inventive step and do comply with Article 33(3) PCT.

INDUSTRIAL APPLICABILITY

The subject matter of claims 1 to 18 is considered to be industrially applicable and is thus fulfilling the requirements of Article 33(4) PCT.

Box No. VII Certain defects in the international application
--

The following defects in the form or contents of the international application have been noted :

Pages 36, 40, 41 and 42 of the description comprises question marks instead of arrows for the depiction of chemical reactions.
This should be corrected.

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made :

Claims 6 and 17 do not comply with Rule 6.3(a) PCT, because the expression “adapted” does not define the technical feature that solves the problem facing the inventor, but the desired results. Furthermore, this expression is misspelled as “adopted” in the claims.

Claim 11 does not comply with Article 6 PCT, because it is redundant: it solely restates all the possible options for the symbols T and W.

Claims 13 and 14 do not comply with Article 6 PCT, because an operator “or” should be included between the definition of R^5 and that of R^5R^2N for more clarity.

Page 14, line 20, of the description does not comply with Article 5 because of the presence of a web address. The nature of the Internet makes information it contains volatile and changing. Therefore, a reference to a web page does not constitute a valid reference for the description of the background art of the invention.

The paragraph on lines 20 to 24 of page 51 of the description does not comply with Article 6 PCT, because it implies that the protection sought goes beyond the scope of the claims.